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Total Number of Pages in This Submission 9 Attorney Docket Number 2269-3530.3US (97-1257.00/US)

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Date	January 12, 2007	Reg. No.	38,581

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Terry L. Gilton

Serial No.: 09/177,814

Filed: October 23, 1998

For: SEPARATION APPARATUS
INCLUDING POROUS SILICON COLUMN

Confirmation No.: 3621

Examiner: N. Yang

Group Art Unit: 1641

Attorney Docket No.: 2269-3530.3US

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REPLY BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Reply Brief follows the Examiner's Answer of November 14, 2006, and is being filed pursuant to 37 C.F.R. § 41.41. As January 14, 2007, falls on a Sunday, the period for filing this Reply Brief expires on Monday, January 15, 2007. 37 C.F.R. § 1.7.

VII. ARGUMENT

A. REJECTION UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

Withdrawal of the 35 U.S.C. § 112, first paragraph, rejection of claim 1 is gratefully acknowledged.

B. REJECTIONS UNDER 35 U.S.C. § 102

3. ANALYSIS

In the Examiner's Answer, the Examiner asserts that Northrup discloses porous columns that communicate with a detector. In this regard, the Examiner's Answer, at page 11, provides:

Northrup et al in fact teach that the porous silicon members define an interface between two analysis devices (detectors) (claim 10). Therefore, the porous silicon members would be in communication with the analysis devices, which are considered to be the detectors. Examiner's Answer, page 11.

It is clear from the Examiner's understanding of Northrup, the analysis devices, or detectors, of Northrup are separate elements that are merely assembled with a porous silicon member. Therefore, even from the Examiner's perspective, Northrup does not expressly or inherently describe, or even teach or suggest, a sample separation apparatus in which "at least one detector [is] fabricated on the [same] substrate" as that in which "matrices comprising at least two distinct, unconnected porous regions" are formed, as recited in independent claim 1.

It is, therefore, respectfully submitted that Northrup does not expressly or inherently describe, or anticipate, each and every element of the sample separation apparatus to which independent claim 1 is directed. As such, under 35 U.S.C. § 102(b), independent claim 1 is allowable over the disclosure of Northrup.

Each of claims 3, 4, 7, 11, 18, 22-24, 111, and 112 is allowable, among other reasons, for depending directly or indirectly from claim 1, which is allowable.

It is also noted that the Examiner has not addressed the additional explanation that has been set forth in the Appeal Brief as to why dependent claim 7 is allowable. To restate: Northrup lacks any express or inherent description of “a reaction region . . . situated along a length of and contiguous with at least one of . . . at least two porous regions.” The description of Northrup is instead limited to chemical reaction chambers (col. 2, lines 11-18) without any indication that the chambers themselves include reaction regions or that the chambers may be situated along or contiguous with a porous region that extends across a substrate.

It is respectfully requested that the 35 U.S.C. § 102(e) rejections of claims 1, 3, 4, 7, 11, 18, 22-24, 111, and 112 be reversed, and that each of these claims be allowed.

C. REJECTIONS UNDER 35 U.S.C. § 103(a)

3. ANALYSIS

a. KNOLL IN VIEW OF NORTHRUP

It is respectfully submitted that a *prima facie* case of obviousness has not been established against independent claim 1 because Knoll and Northrup both lack any teaching or suggestion of an apparatus that includes a substrate on which a detector is fabricated and across which porous regions, which communicate with the detector, extend. Instead, the detectors of the device disclosed in Knoll communicate with discrete porous “containments.” By using the term “containment” Knoll suggests that the porous elements disclosed therein do not extend at even partially across a substrate. When the relative sizes of the substrate and the containments of

Knoll are considered (*see, e.g.*, FIG. 11), this suggestion is confirmed. It is further substantiated by the fact that Knoll describes the containments as terminal traps at the ends of branches of non-porous capillary columns. *See, e.g.*, FIGs. 10 and 11; col. 8, lines 50-64. In fact, the containments of Knoll are configured to micromechanically anchor ion-selective membranes (col. 3, line 65, to col. 4, line 2) and, presumably, to receive samples that are to be analyzed using the ion-selective membranes.

In view of the fact that the device of Knoll includes porous containments but not porous capillary columns, it does not appear that one of ordinary skill in the art would have had any reason to incorporate porous columns of the type taught in Northrup into the non-porous capillary columns of Knoll. Nor has the Examiner set forth a convincing line of reasoning as to why one of ordinary skill in the art would have been so motivated.

Accordingly, it is respectfully submitted that, under 35 U.S.C. § 103(a), the subject matter to which independent claim 1 is directed is allowable over the teachings of Knoll and Northrup.

Claims 5, 7, 8, 10, 11, 14, 15, 25-29, 111, and 112 are each allowable, among other reasons, for depending directly or indirectly from claim 1, which is allowable.

b. HELLER, VICKERS, AND NORTHRUP

Like Knoll, the teachings of Heller are limited to devices with porous “micro-locations” that are in communication with optoelectronic or microelectronic detection components. As evidenced by their name, “micro-locations” do not extend across a substrate, particularly when their size is considered relative to the size of the substrate in which they are formed. Unlike

Knoll, the micro-locations of Heller do not communicate with capillary columns that extend across a substrate.

In view of these limitations on the subject matter taught or suggested by Heller, especially when considered along with the deficiencies in the teachings of Northrup and Vickers, a *prima facie* case of obviousness has not been established against independent claim 1, as would be required to uphold the 35 U.S.C. § 103(a) rejection of independent claim 1.

Each of claims 3, 5, 6-11, 14, 15, 18, 22-24, 111, and 112 is allowable, among other reasons, for depending directly or indirectly from claim 1, which is allowable.

c. BURNS IN VIEW OF NORTHRUP

Burns teaches the desirability of apparatus that include two pieces that have been bonded together: a first piece with channels and other features for handling fluids; and a second piece upon which electronic components, including sensors, are fabricated. Col. 21, line 24, to col. 22, line 13 (in particular, col. 21, lines 42-44). Thus, Burns does not teach or suggest that the channels of the disclosed device and the sensors thereof are formed in and fabricated on the same substrate, as required by independent claim 1.

As explained above, as well as in the APPEAL BRIEF, Northrup similarly lacks any teaching or suggestion of a substrate in which porous regions are formed and on which at least one detector is fabricated.

Therefore, Burns and Northrup cannot together teach or suggest a substrate in which porous regions are formed and on which at least one detector is fabricated, as recited in independent claim 1. It is, therefore, respectfully submitted that the teachings of Burns and

Northrup do not support a *prima facie* case of obviousness against independent claim 1. As such, the subject matter recited in independent claim 1 is allowable over the subject matter taught in Burns and Northrup.

Claims 3-5, 7-9, 13, 16-20, 22-27, 111, and 112 are each allowable, among other reasons, for depending directly or indirectly from claim 1, which is allowable.

d. BURNS, NORTHRUP, AND DUBROW

Claim 21 is allowable, among other reasons, for depending indirectly from claim 1, which is allowable.

XI. CONCLUSION

It is respectfully submitted that:

- (A) Claims 1, 3, 4, 7, 11, 18, 22-24, 111, and 112 are allowable under 35 U.S.C. § 102(e) for being drawn to subject matter that is not anticipated by the subject matter described in Northrup;
- (B) Under 35 U.S.C. § 103(a), the subject matter to which claims 1, 5, 7, 8, 10, 11, 14, 15, 25-29, 111, and 112 are directed is allowable over the teachings of Knoll, in view of teachings from Northrup;
- (C) Claims 1, 3, 5, 6-11, 14, 15, 18, 22-24, 111, and 112 recite subject matter that, under 35 U.S.C. § 102(b) (apparently 35 U.S.C. § 103(a)), is allowable over the subject matter described in Heller, in view of the disclosure of Vickers and, further, in view of the subject matter described in Northrup;

(D) Under 35 U.S.C. § 102(e) (apparently 35 U.S.C. § 103(a)), claims 1, 3-5, 7-9, 13, 16-20, 22-27, 111, and 112 are drawn to subject matter that is allowable over the disclosure of Burns, in view the subject matter disclosed in Northrup; and

(E) Claim 21 recites subject matter that, under 35 U.S.C. § 103(a), is allowable over teachings from Burns, in view of teachings from Northrup and, further, in view of the teachings of Dubrow.

Accordingly, reversal of the final rejections of claims 1, 3-11, 13-29, 111, and 112 is respectfully requested, as is the allowance of each these claims.

Respectfully submitted,



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Date: January 12, 2007

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